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(54) Title: **TELEPHONE EXTENSION SYSTEM**

(57) Abstract

In a carrier telephone extension system for transmitting electrical signals between the telephone line (1) (Fig. 4) and one or more extension telephones (12) and (14) over the AC electric power line (10) available at a telephone subscriber's premises or other transmission line, that includes a main station (316) (Fig. 3) for processing signals between the subscriber's telephone line (1) and power lines (202) (Fig. 1), (10) (Fig. 5), (301) (Fig. 3) and one or more extension telephones (12, 17) of the system that plug into the power line, means (303) (Fig. 3) for encoding and decoding the signals that are transmitted over the power line between the main station (316) (Fig. 3) and extension telephones (204) (Fig. 3) of the system as an aid to eliminating interference, or signals originating in other power line or transmission line carrier systems that have access to the same power line main and inhibiting eavesdropping. Thus, any of the extension phones of the system can be used at any location at the subscriber's premises where there is access to the power line or transmission line and interfering signals and eavesdropping are avoided. All of the extension telephones can place calls to the telephone line, answer calls from the telephone line and conference together in full duplex communication. Also, means are provided at the extension telephones for initiating a telephone line hold signal that is transmitted over the power line to the main station where the hold signal is detected and initiates connecting a hold impedance across the telephone line. Further means are provided for two or more of the system telephones to communicate without going on the telephone line (Intercom), even while another system telephone is engaged in an outside telephone call and means are further provided for all telephones of the system to conference in Intercom.

